NDIA 10th Annual Systems Engineering Conference
OSD and Services Chief Engineer Panel

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Mr. Carl R. Siel, Jr.
ASN(RDA) Chief Systems Engineer
carl.siel@navy.mil

Topics

RDA CHIEF SYSTEMS ENGINEER

- Current Challenges
- Progress
- Emergent Challenges

Department of Navy Challenges

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- Reverse erosion of domain knowledge within DoN
- Increase our knowledge of the shipbuilding process
  - *"…understand how to integrate design and production technology into an acquisition process that industry can execute."*
- Establish a deep knowledge of systems engineering and a profound understanding of acquisition process
  - *"Systems engineering is key to ensuring that each ship is configured to optimize the fleet.*
  - *The Navy does not fight a ship by itself. It wages war as part of an Expeditionary Strike Group or a Carrier Strike Group.*
  - *And those strike group formations are part of even larger Joint operations.*
  - *All this implies a need for integration of elements and capabilities."*

(Adapted from SECNAV speech to the Sea Air Space Exposition on 3 April 2007)

DoN Systems Engineering Hierarchy

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Mission

Force Focused

Translates Operational Concepts → Capabilities

System of Systems

Net Centric Integration
Platform Integration

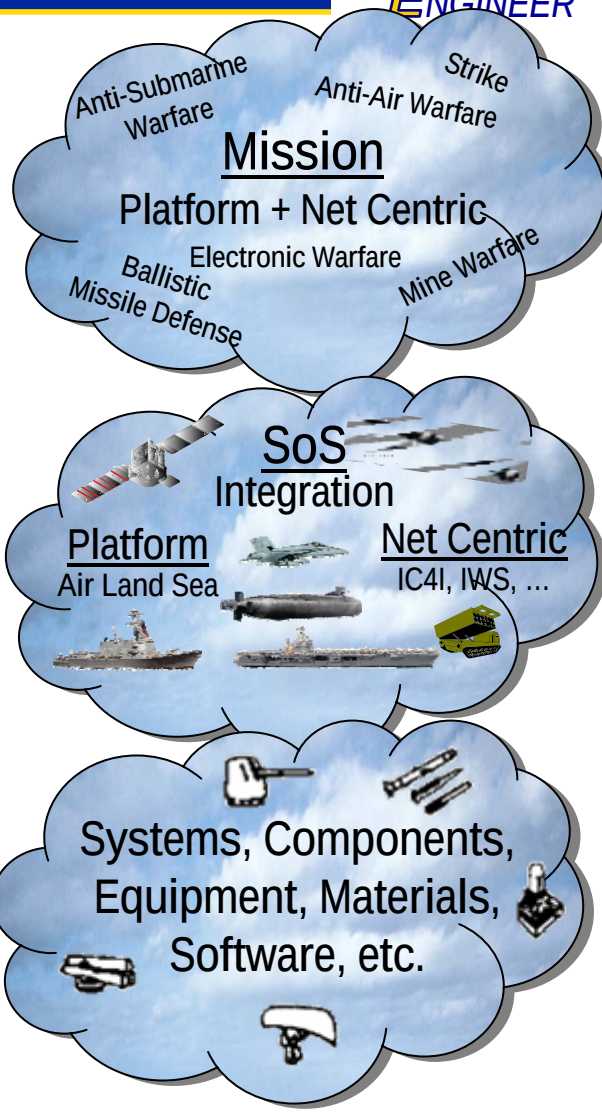
Capability Focused

Translates Capabilities → System Requirements

Systems and Components

Design, Build, Test Focused

Translates System Requirements → End Items



Must consider the Hierarchy and DOTMLPF over Time

Steps to Address Challenges

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- Navy must re-assert its control over the entire acquisition process
  - "*Control over the process means that the Navy must make the selections of key trade-offs – performance, crew size, logistics support, cost, and schedule.*
  - *Added to that consideration is the fact that ships do not operate in isolation - - they operate with shore and air components.*
  - *These other factors are highly relevant, so it is very important that the Navy take all factors into consideration and exercise control over the decision process."*
- The Navy must define the design constraints to optimize the overall capability of the Fleet
  - *"…it is the Navy's responsibility to optimize the fleet's capabilities.*
  - *Such optimization might include common standards; preferred components and subsystems; mission modularity; and open architecture."*

(Adapted from SECNAV speech to the Sea Air Space Exposition on 3 April 2007)

Progress

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- People, Process, Tools, Standards
  - Exercising Mission Level - Systems of Systems Engineering
    - Mine Warfare and Anti Submarine Warfare Missions
  - Systems Engineering Technical Review Process
    - Consolidating into a comprehensive process
    - Alignment of System Engineering Plans
    - Increased management of technical standards
    - Technical Authority and Competency Alignment
  - Systems Engineering Competencies
    - Personnel Knowledge, Skills, and Abilities (KSA)
    - Education, Training, and Experience
    - Air, Sea, Land, and Net-Centric Mission Systems
- PR 09 Systems Engineering Revitalization
  - $ 150 M increase over FY 09 – 13
    - Enhance People, Process, Tools, and Standards

Emergent Challenges

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- Securing and Assuring the "System"
  - Protecting Program and Operational Information
  - Maintaining confidence in our Products
    - Network and Software Vulnerabilities
    - Information Security and Assurance
    - Anti-Tamper – Re Engineering
  - Safe and Assured Operations
    - Weapon Safety
    - Air Worthiness and Safety of Flight
    - Submarine Safety
    - Surface Ship Certification
    - Information Security and Assurance
  - Prevent the Loss of Life and Property

Consumers – Suppliers – Users are part of the Equation